APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,459	08/29/2001	Alain Houle	CISCP713	7946

26541 7590 11/06/2003		EXAMINER
RITTER, LANG & KAPLAN		FLORES RUIZ, DELMA R

RITTER, LANG & KAPLAN
12930 SARATOGA AE. SUITE D1
SARATOGA, CA 95070

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _11 August 2003_ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _See Continuation Sheet_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1, 3-4, 6-9, 11-12, 14-15, 17-20, 22-23, 25-26, 28-31, and 33 - 34_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

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Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____ .

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Continuation of Disposition of Claims: Claims pending in the application are 1, 3-4, 6-9, 11-12, 14-15, 17-20, 22-23, 25-26, 28-31, and 33 - 34 .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

Claims 1, 4, 12, 15, 23, and 26 rejected under 35 U.S.C. 102(b) as being

anticipated by Benoist (4,801,206).

Regarding claims 1, and 12 Benoist disclose a method and apparatus for

controlling an output frequency of a laser, said method comprising; passing optical

energy from an output of said laser (see Fig. 1, Character 10) to an optical component

having a frequency selective response characteristic; measuring response of said

optical component having said frequency selective response characteristic to said

optical energy from said laser output using exactly one photodetector (see Fig. 2,

Character 50); and controlling (see Fig. 7, Character 73) said laser energy from said

measured response by generating an error signal based on a difference between a

measured laser output frequency and a desired laser output frequency and generating a

control signal for said laser output frequency based on a sum of said error signal and a

dithering signal and if said measured response indicates said laser output frequency is

outside a tracking range, sweeping a control signal until said laser output frequency is

within said tracking range (see Figs 1 – 7 Abstract, Column 2, Lines 35 – 49, 63 – 68,

Column 3, Lines 1 – 32, Column 4, Lines 25 – 38, Column 6, Lines 1 – 68, Column 7,

Lines 1 – 38, Column 10, Lines 7 – 34, 59 – 61, Column 11, Lines 1 – 16, 47 – 66, and

Column 12, Lines 4 – 28).

Regarding claims 4, 15, and 26, Benoist disclose a optical component having a

frequency-selective response characteristic comprises a fiber Bragg grating (see Fig. 2,

Character 50) having notch frequency substantially equivalent to a desired output

frequency of said laser (see Figs 1 – 7, Abstract, Column 2, Lines 35 – 49, 63 – 68,

Column 3, Lines 1 – 32, Column 4, Lines 25 – 38, Column 6, Lines 1 – 68, Column 7,

Lines 1 – 38, Column 10, Lines 7 – 34, 59 – 61, Column 11, Lines 1 – 16, 47 – 66, and

Column 12, Lines 4 – 28).

Regarding claim 23 Benoist disclose apparatus for controlling an output

frequency of a laser, said apparatus comprising; means for passing optical energy from

an output of said laser to an optical component having a frequency-selective response

characteristic means for measuring response of said optical component having said

frequency selective response characteristic to said optical energy from said laser output

using exactly one photodetector (see Fig. 2, Character 50); means for controlling said

laser output frequency based on said measured response by generating an error signal

based on a difference between a measured laser output frequency and a desired laser

output frequency generating a control signal for said laser output frequency based on a

sum error signal and a dithering signal; and means for, if said measured response

indicated said laser output frequency is outside a tracking range, sweeping a control

signal until said laser output frequency is within said tracking range (see Figs 1 – 7

Abstract, Column 2, Lines 35 – 49, 63 – 68, Column 3, Lines 1 – 32, Column 4, Lines

25 – 38, Column 6, Lines 1 – 68, Column 7, Lines 1 – 38, Column 10, Lines 7 – 34, 59 –

61, Column 11, Lines 1 – 16, 47 – 66, and Column 12, Lines 4 – 28).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 3, 6 – 10, 13, 14, 17 – 21, 24, 25, 28 – 32 are rejected under 35 U.S.C.

103(a) as being unpatentable over Benoist (4,801,206) in view of Munks et al

(6,353,623).

Regarding claims 7, 18, and 29, Aspell discloses a method and apparatus of

wherein controlling said laser output frequency comprises; generating an error signal,

(see Fig. 7, Character 80, Column 10, Lines 7 – 34) based on a difference between a

measured laser output frequency and a desired laser output frequency; and generating

a control signal (see Fig. 7, Character 73) for said laser output frequency based on a

sum of said error signal and said dithering signal (see Figs 1 – 7 Abstract, Column 2,

Lines 35 – 49, 63 – 68, Column 3, Lines 1 – 32, Column 4, Lines 25 – 38, Column 6,

Lines 1 – 68, Column 7, Lines 1 – 38, Column 10, Lines 7 – 34, 59 – 61, Column 11,

Lines 1 – 16, 47 – 66, and Column 12, Lines 4 – 28).

Regarding claims 3, 8, 14,19, 25, and 30 Benoist disclose the method of

wherein generating an error signal comprises: sampling said measured response at a

first and second sampling time during a period, and developing said error signal based

on a different between sample recorded at a said first and second sampling time (see

Figs 1 – 7 Abstract, Column 2, Lines 35 – 49, 63 – 68, Column 3, Lines 1 – 32,

Column 4, Lines 25 – 38, Column 6, Lines 1 – 68, Column 7, Lines 1 – 38, Column 10,

Lines 7 – 34, 59 – 61, Column 11, Lines 1 – 16, 47 – 66, and Column 12, Lines 4 – 28).

Benoist disclose the claimed invention except for dithering signal cause an upward

fluctuation in said laser output frequency. It would have been obvious at the time of

applicant's invention, to combine Munks of teaching a dithering signal cause an upward

fluctuation in said laser output frequency with controlling an output frequency of a laser

because accordingly, a phase sensitive modulator communicates with the dither

modulator to demodulate the detected signal for communicating with the error circuit, to

ensure operation on the negative positive slope (i.e., in the proper tuning range) or to

inform the error circuit of which slope to use in determining the error signal.

Regarding claims 6, 9, 17, 20, 28, and 31, Benoist discloses a methods and

apparatus for controlling an output frequency of a laser comprising; passing optical

energy from an output of said laser (see Fig. 1, Character 10) to an optical component

having a frequency-selective response characteristic; measuring response to said

optical component having said frequency-selective response characteristic to said

optical energy from said laser output and a optical component having a frequency-

selective response characteristic comprises a fiber Bragg grating (see Fig. 2, Character

50) having notch frequency substantially equivalent to a desired output frequency of

said laser and controlling said laser frequency based on said measured response

comprises; of said response indicates said laser output frequency is outside a tracking

range, sweeping a control signal until said laser output frequency is within said tracking

range (see Figs 1 – 7 Abstract, Column 2, Lines 35 – 49, 63 – 68, Column 3, Lines 1 –

32, Column 4, Lines 25 – 38, Column 6, Lines 1 – 68, Column 7, Lines 1 – 38, Column 10, Lines 7 – 34, 59 – 61, Column 11, Lines 1 – 16, 47 – 66, and Column 12, Lines 4 – 28). Benoist disclose the claimed invention except for generating a dithering signal to dither said output frequency of said laser; and controlling said laser output frequency based on said measured response as influence by said dithering signal. It would have been obvious at the time of applicant's invention, to combine Munks of teaching generating a dithering signal to dither said output frequency of said laser; and controlling said laser output frequency based on said measured response as influence by said dithering signal with controlling an output frequency of a laser because accordingly, a phase sensitive modulator communicates with the dither modulator to demodulate the detected signal for communicating with the error circuit, to ensure operation on the negative positive slope (i.e., in the proper tuning range) or to inform the error circuit of which slope to use in determining the error signal.

Claims 11, 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benoist (4,801,206) in view of Munks et al (6,353,623) further in view of Sugarbaker et al (5,262,843).

Regarding claims 11, 22 and 33 Benoist in view of Munks disclose the claimed

invention except for dithering signal comprises a square wave. It would have been

obvious at the time of applicant's invention, to combine Sugarbaker of teaching a

dithering signal comprises a square wave with method and apparatus for controlling an

output frequency of a laser because a dither signal in the form of a square wave

phase shift signal is combined with the square wave phase error signal to apply to the

phase modulator a phase shift which is equivalent to the Sagnac phase shift and a

further phase shift to shift the phase of the intensity signal to a more linear portion of

the optical output signal. A dither signal generator introduces a square wave dither

signal in the loop at a summing node and also provides a synchronization signal for

the peak-to-peak detector.

Response to Arguments

Applicant's arguments filed 8/11/2003 have been fully considered but they are

not persuasive. Applicant's arguments with respect to claims 1, 3-4, 6-9, 11-12, 14-15,

17-20, 22-23, 25-26, 28-31, and 33 – 34 have been considered but are moot in view of

the new ground(s) of rejection. Applicants amendments raised new issues that made

necessary the new art to be applied and therefore, the arguments presented against

Aspell are said to be moot due to the new grounds of rejection. Applicant's amendments

have been fully addressed by the above presented rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703)

308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 308-7722 for

regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 306-

3431.

/Delma R. Flores Ruiz\   Paul Ip
Examiner   Supervisor Patent Examiner
Art Unit 2828   Art Unit 2828
DRFR/PI
October 31, 2003